

First Virginia Record for an Adventive Spittlebug, *Neophilaenus lineatus* (Homoptera: Cercopidae)

A. G. Wheeler, Jr.
 Bureau of Plant Industry
 Pennsylvania Department of Agriculture
 Harrisburg, Pennsylvania 17110

Neophilaenus lineatus (L.) is a common Old World spittlebug whose life history and population dynamics on grasses and rushes are well known in Great Britain (Whittaker, 1965 a,b). The first valid record from the Nearctic Region was New York in the late 1880s (Lintner, 1888). Considered adventive in North America (Hamilton, 1979), *N. lineatus* has been referred to as the grass-feeding spittlebug (or froghopper) (e.g., Osborn, 1916; Garman, 1921) or the lined spittlebug (e.g., Hamilton, 1982); the latter is the common name recognized by the Entomological Society of America. This univoltine cercopid overwinters in the egg stage and is often abundant in lush meadows, seepage areas, and wet prairies on orchardgrass (*Dactylis glomerata* L.), reedtop (*Agrostis gigantea* Roth.), timothy (*Phleum pratense* L.), and other grasses (Osborn, 1916, 1939; Garman, 1921; Hanna & Moore, 1966; Hanna, 1970).

The North American distribution of this spittlebug has been regarded as distinctly northern (Hamilton, 1979, 1982). It is known from numerous localities in eastern Canada, from the Maritime Provinces to Ontario, and is present in British Columbia and perhaps Alberta in the West. In the United States it has been recorded from Maine south to Pennsylvania and New Jersey (Metcalf, 1962; Hamilton 1979, 1982). *Neophilaenus lineatus* has been confused with the native cercopid *Philaenarcys bilineata* (Say), and early records from Colorado, Minnesota, Missouri, New Mexico, and North Dakota apparently are based on misidentifications. From *P. bilineata*, *N. lineatus* can be distinguished by its narrow forewings with simple (rather than reticulate) venation (Baker, 1897; Hamilton, 1979, 1982).

Here I give Virginia as a new state record; the following localities become the southernmost known for *N. lineatus* in the United States: Page Co., near Big

Meadows, Skyline Drive, Shenandoah National Park, elev. c. 3500 ft., 7 August 1994 (AGW); Rockingham Co., Rader Mountain, near Laurel Run and West Virginia state line, George Washington National Forest, elev. c. 3600 ft., 25 June and 6 August 94 (AGW). Adults were common on timothy and other grasses at both localities, and voucher specimens have been deposited in the Cornell University Insect Collection, Ithaca, New York.

The occurrence of *N. lineatus* in relatively undisturbed mountain meadows in Virginia might suggest that this cercopid is indigenous to North America. Many grass-and sedge-feeding insects of northern distribution are indeed naturally Holarctic (Wheeler & Henry, 1992 and references therein). But this spittlebug belongs to a genus that is strictly Palearctic; generally occurs within a 500-km radius of major North American ports (rather than showing a transarctic or transboreal distribution typical of Holarctic species); and is apparently absent from Alaska, Yukon Territory, Chukotka, Magadan Province, Kamchatka, and extreme northern Yakutia (Metcalf, 1962; Hamilton, 1979, 1982), Beringian areas typically occupied by true Holarctic species (see Wheeler & Henry, 1992). Although *N. lineatus* may be found on native grasses (Osborn, 1922), it has been recorded most often from various introduced grass species (Osborn, 1916, 1939; Garman, 1921; Putman, 1953; Hardee et al., 1963). In addition, *N. lineatus* was collected in Rockingham Co. with various clear-cut adventive hemipterans, including the leafhopper *Athysanus argentarius* Metcalf (Hamilton, 1983) and the mirid *Megaloceroea recticornis* (Geoffroy) (Wheeler & Henry, 1992). Evidence suggests that this cercopid is an immigrant species in the New World and is a relatively recent addition to the fauna of Virginia.

Acknowledgments

I thank E. R. Hoebeke (Department of Entomology, Cornell University, Ithaca, NY) for confirming my identification of *N. lineatus*, providing copies of several papers, and for reviewing the manuscript.

Literature Cited

- Baker, C. F. 1897. Notes on *Philaenus*. Canadian Entomologist 29:111-112.
- Garman, P. 1921. The grass-feeding frog-hopper or spittle-bug. Connecticut Agricultural Experiment Station Bulletin 230. Hartford, Connecticut.
- Hamilton, K. G. A. 1979. Synopsis of the North American Philaenini (Rhynchota: Homoptera: Cercopidae) with a new genus and four new species. Canadian Entomologist 111: 127-141.
- Hamilton, K. G. A. 1982. The Insects and Arachnids of Canada Part 10. The Spittlebugs of Canada. Homoptera: Cercopidae. Agriculture Canada Publication 1740. Biosystematics Research Institute, Ottawa, Ontario. 102 pp.
- Hamilton, K. G. A. 1983. Introduced and native leafhoppers common to the Old and New Worlds (Rhynchota: Homoptera: Cicadellidae). Canadian Entomologist 115: 473-511.
- Hanna, M. 1970. An annotated list of the spittlebugs of Michigan (Homoptera: Cercopidae). Michigan Entomologist 3:2-16.
- Hanna, M., & T. E. Moore. 1966. The spittlebugs of Michigan (Homoptera: Cercopidae). Papers of the Michigan Academy of Science, Arts, and Letters 51: 39-73.
- Hardee, D. D., H. Y. Forsythe, Jr., & G. G. Gyrisco. 1963. A survey of the Hemiptera and Homoptera infesting grasses (Gramineae) in New York. Journal of Economic Entomology 56: 555-559.
- Lintner, J. A. 1888. *Ptyelus lineatus* (Linnaeus). The lined spittle-hopper. Pp. 120-121 In Fourth report on the injurious and other insects of the State of New York. New York State Museum Natural History Report 41.
- Metcalf, Z. P. 1962. General Catalogue of the Homoptera. Fasc. VII Cercopoidea, Pt. 3 Aphrophoridae. North Carolina Agricultural Experiment Station, Raleigh.
- Osborn, H. 1916. Studies of life histories of froghoppers of Maine. Maine Agricultural Experiment Station Bulletin 254.
- Osborn, H. 1922. Homoptera in the vicinity of Cranberry Lake. Pp. 24-54 In H. Osborn & C. J. Drake (eds.), An ecological study of the Hemiptera of the Cranberry Lake Region, New York. New York State College of Forestry, Syracuse University. Technical Publication 16 (Vol. 22, No. 5).
- Osborn, H. 1939. Meadow and Pasture Insects. Educators' Press, Columbus, Ohio. 288 pp.
- Putman, W. L. 1953. Notes on the bionomics of some Ontario cercopids (Homoptera). Canadian Entomologist 85: 244-248.
- Wheeler, A. G., Jr., & T. J. Henry. 1992. A Synthesis of the Holarctic Miridae (Heteroptera): Distribution, Biology, and Origin, with Emphasis on North America. Thomas Say Foundation Vol. 15. Entomological Society of America, Lanham, Maryland. 282 pp.
- Whittaker, J. B. 1965a. The biology of *Neophilaenus lineatus* (L.) and *N. exclamatoris* (Thunberg) (Homoptera: Cercopidae) on Pennine moorland. Proceedings of the Royal Entomological Society of London (A) 40: 51-60.
- Whittaker, J. B. 1965b. The distribution and population dynamics of *Neophilaenus lineatus* (L.) and *N. exclamatoris* (Thun.) (Homoptera, Cercopidae) on Pennine moorland. Journal of Animal Ecology 34:277-297.